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Title: Process Model of Plutonium Aqueous Recovery Operations in PF-4

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Process Model of Plutonium Aqueous Recovery Operations in PF-4

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Summer Fun

Devin Kimball (AET-2)

- Educational Background
  - o BS Brigham Young University, 2016
  - o PhD University of Tennessee, 2020ish

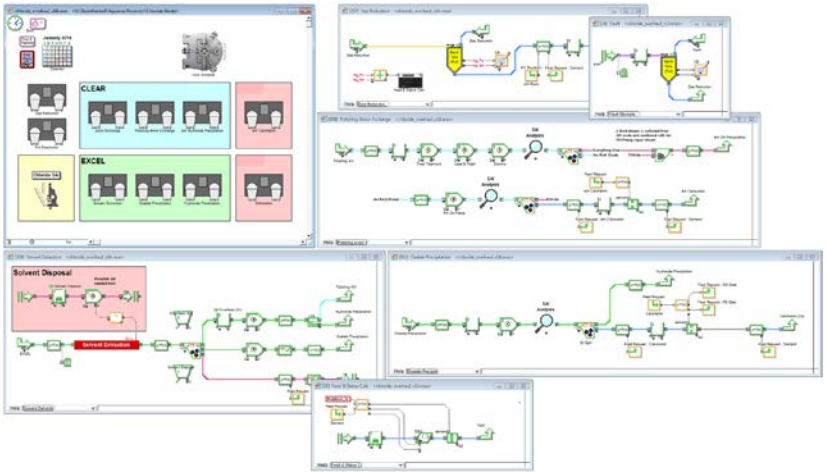
- Group
  - o Process Modeling & Analysis
  - o Robert Parker

- Research
  - o Process Modeling of Aqueous Plutonium Recovery in PF-4

Research Overview and Motivation

- **Provide a systems level analysis of Pu aqueous recovery operations**
  - Process throughput, criticality analysis, etc.
- **Pu aqueous recovery supports pit fabrication in PF-4**
- **NA-22: understanding our process parameters helps with nonproliferation efforts**

Research Approach



- ExtendSim discrete event simulator

- SNM throughput / capacity
- Personnel requirements
- Criticality limits

Summary of Results

- **Aqueous Recovery**
  - o Chloride Line
  - o Nitrate Line
- **Pyrochemical Operations**
- **Integrated Model**
- **Criticality Analysis**